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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,158	11/27/2001	Lawrence C. Bank	09820.176	9901

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EXAMINER

THOMPSON, CAMIE S

ART UNIT PAPER NUMBER

1774

DATE MAILED: 07/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/995,158

Applicant(s)

BANK ET AL.

Examiner

Camie S Thompson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 14-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 19-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 & 3
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. Applicant's election of Group I, claims 1-13 and 19-20 with traverse are acknowledged.
2. Applicant argues the restriction requirement. Group I, claims 1-13 and 19-20 are drawn to an elongated structural reinforcing strip and Group II, claims 14-18 are drawn to the method of reinforcing a structure. A different method can be used to reinforce a structure. For example, the reinforcing strip can be placed on a surface that already has fasteners. Additionally, the method for reinforcing a structure and a reinforcing strip require different search strategies. The requirement for restriction is still deemed proper and therefore is made **FINAL**.

Claim Rejections - 35 USC § 112

3. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear in claim 1 whether or not the structural reinforcing strip comprises of a, b, c and several fasteners or a structural reinforcing strip comprising a, b, c and is attached to a surface that has fasteners. It is unclear as to whether or not the "wherein" clause in claim 1 is for intended use of the strip.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4, 7-11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Tingley, U.S. Patent Number 5,648,138.

Tingley discloses a wood structural member comprising reinforcing panels (see abstract).

Figures 5b and 5c of the reference disclose embodiments of the reinforcing panels having two types of fibers. A first fiber is arranged parallel to one another and aligned with the longitudinal direction of the panel and the second fiber is arranged between the first type of fibers and a surface as per instant claim 1 (see column 6, lines 29-40). The reference also discloses a first fiber and a fiber mat as an embodiment as per instant claim 4 and 9 (see column 6, lines 54-68).

The first fiber can include carbon and fiberglass as per instant claims 1 and 11 (see column 6, lines 29-68). Additionally, the reference discloses that the fibers are embedded in a polymer matrix such as epoxy resin as per instant claims 1 and 11 (see column 7, lines 1 and 2). Figures 5a-c disclose nondirectional fibers distributed substantially across the strip as per instant claims 3 and 10. It is also shown in the figures of the reference that the parallel fibers are in bundles spaced transversely across the panel and evenly spaced as per instant claims 2, 7 and 8.

Column 8, lines 27-30 of the reference disclose that the fiber to resin volume ratio is 60/40 as per instant claim 13. The reference meets all the limitations of claims 1-7, 7-11 and 13 subject to interpretation of the "wherein" clause for intended use of the strip.

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Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tingley, U.S. Patent Number 5,648,138 in view of Moghe et al., U.S. Patent Number 5,127,783.

Tingley discloses a wood structural member comprising reinforcing panels (see abstract).

Figures 5b and 5c of the reference disclose embodiments of the reinforcing panels having two types of fibers. A first fiber is arranged parallel to one another and aligned with the longitudinal direction of the panel and the second fiber is arranged between the first type of fibers and a surface as per instant claim 1 (see column 6, lines 29-40). Additionally, the reference discloses that the fibers are embedded in a polymer matrix such as epoxy resin as per instant claim 1 (see column 7, lines 1 and 2). Tingley does not disclose that the nondirectional fibers are continuous fibers as per instant claim 5. Moghe teaches carbon-reinforced structural composites wherein the fibers are continuous (see column 2, lines 55-68). Additionally, Moghe discloses that the fibers extend in multiple directions and other fibers extend in the direction of the composite (see column 1, lines 4-12). The continuous fibers provide strong reinforcement when embedded into a matrix. Therefore, it would have obvious to one of ordinary skill in the art to have continuous nondirectional fibers in the mat of the strip in order to achieve a strong composite capable of

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withstanding large loads. The combination of the references meets the limitations of claims 1 and 5 subject to interpretation of the "wherein" clause for intended use of the strip.

8. Claims 1-3, 5-6, 11-13 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehansi et al., U.S. Patent Number 5,640,825 in view of Moghe et al., U.S. Patent Number 5,127,783.

Ehansi discloses a reinforced structure using a composite strap material as per instant claims 1 and 19. Also, the reference discloses that the composite can be in individual strands or in multiple strands that are weaved together to form a substantially flat tape wherein the fibers are oriented in selected ones of longitudinal, transverse and of combinations thereof as per instant claim 1 (see column 2, lines 38-47). Additionally, the reference discloses in column 5 that the strap is flexible and can be applied to the contour of the surface as per instant claim 6. Figures 4 and 5 of the reference disclose two embodiments of the composite material. The figures illustrate a mixture of fibers embedded into a matrix. The fibers are embedded in random orientations (see column 3, line 64-column 4, line 2). In addition, figures 4 and 5 illustrate that the fibers are distributed at least substantially uniformly across the strip as per instant claim 3. The figures also illustrate fibers that have discrete spaces therebetween. The discrete spaces allow the fasteners to be inserted into the composite. The size of the spaces is an optimizable feature. Therefore, it would have been obvious to one of ordinary skill in the art to have the spaces between the parallel fibers be large enough to accommodate the fasteners as per instant claim 2. Moghe teaches carbon-reinforced structural composites wherein the fibers are continuous (see column 2, lines 55-68). Additionally, Moghe discloses that the fibers extend in multiple directions and other fibers extend in the direction of the composite (see column 1, lines 4-12).

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The continuous fibers provide strong reinforcement when embedded into a matrix. Therefore, it would have been obvious to one of ordinary skill in the art to have continuous nondirectional fibers in the mat of the strip in order to achieve a strong composite capable of withstanding large loads. Therefore, it is prima facie obviousness to have elongated continuous parallel fibers extending along the length of the strip and nondirectional continuous fibers distributed transversely across the strip since both embodiments provide the same function of reinforcement. The reference also discloses that the strap is impregnated with epoxy resin as per instant claim 1 (see column 2, lines 50-52). Figure 3 of the reference discloses that fasteners such as bolts as per instant claim 1 anchor the opposite ends of the straps. Ehansi discloses in column 2 that glass and carbon are included in the material and the matrix used is an epoxy resin as per instant claim 11. The fiber to resin volume ratio is an optimizable feature. The fiber content affects the strength of the composite. Discovery of optimum values of a result effective variable involves only routine skill in the art in re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA). Therefore, it would have been obvious to one of ordinary skill in the art to have fiber volume of at least 50% in order to obtain a composite material with high strength as per instant claim 13. Although Ehansi does not specifically disclose that the parallel fibers include glass and carbon fibers and the nondirectional fibers include glass fibers, Ehansi does disclose that glass and carbon fibers are high strength fibers. Therefore, it would have been obvious to one of ordinary skill in the art to use carbon fibers as the parallel fibers and glass fibers and the nondirectional fibers in order to ensure that the reinforced composite has sufficient strength to handle severe loads caused by earthquakes. Although Ehansi does not specifically disclose that some of the nondirectional fibers have lengths greater than or equal to a distance defined between adjacent parallel fibers, the reference

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does disclose that the composite has a mixture of high strength random fibers. Figures 4 and 5 illustrate the mixture of fibers spaced apart at a length equal to the fibers as per instant claim 20 in order to provide sufficient strength to the composite.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (703) 305-4488. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly, can be reached at (703) 308-0449. The fax phone numbers for the Group are (703) 872-9310 {before finals} and (703) 872-9311 {after finals}.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.



MARIE YAMNITZKY
PRIMARY EXAMINER

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